OFFSHORE JA KAASUN POTENTIAALI

MERIKLUSTERIN TULEVAISUUSVERSTAS 13.10.2015

Timo Koponen, Vice President, Flow & Gas Solutions

Strategic focus for Wärtsilä Marine Solutions

Marine Solutions’ strategic goal

To be recognised as the leading provider of innovative products and integrated solutions in the marine and offshore oil & gas industry.

LEADER IN

THROUGH OFFERING

- Lifecycle solutions for ship owners and operators
- Integrated solutions for the shipbuilding industry, owners and operators
- The most competitive products and delivery process for the marine industry

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Marine Solutions operates in two industries

The Marine industry

- Merchant, Cruise & Ferry, Navy and Special vessels

Developments in the global economy drive demand for:

- Seaborne cargo transportation
- Cruise and ferry services
- Navy vessels

The Oil and Gas industry

- Newbuild vessels and rigs for exploration and production in offshore fields
- Gas distribution chain equipment and infrastructure (e.g. for liquefaction and regasification)

Global demand and price level for oil and gas are crucial for:

- Investment into offshore oil and gas exploration and production (including support vessels)
- Investment into development of gas distribution chains

- **Cautious outlook** given **increased uncertainty** over developments in global economy and oil prices
- **Environmental regulations**, increased **safety requirements**, fuel costs and **efficiency** requirements continue to support investments – however **lower fuel costs and uncertainty over enforcement of environmental regulation** weaken the effect

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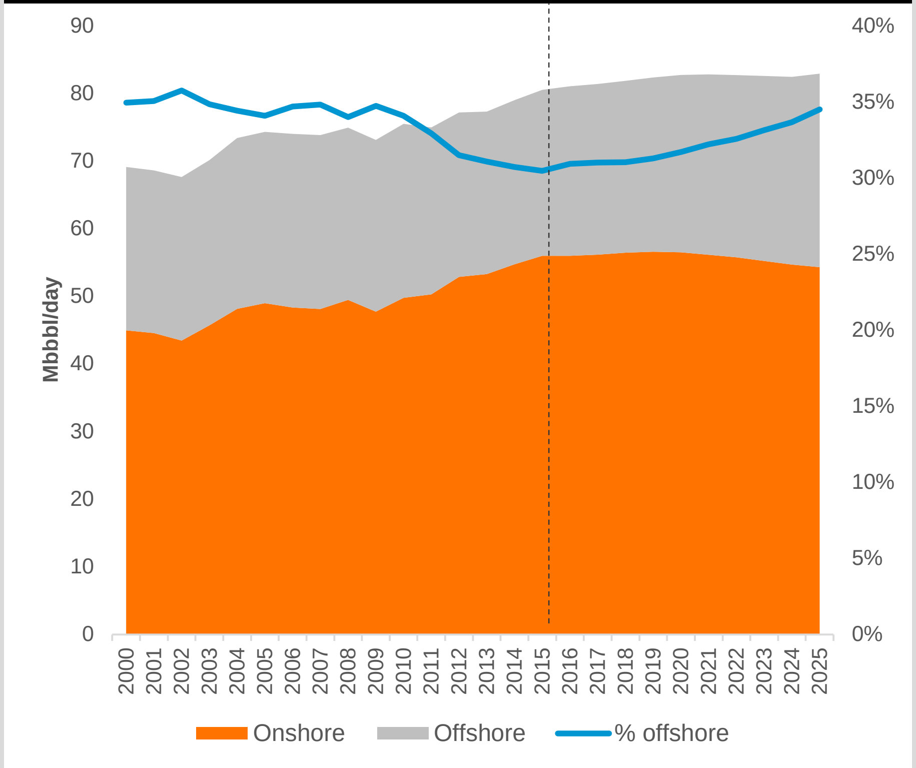
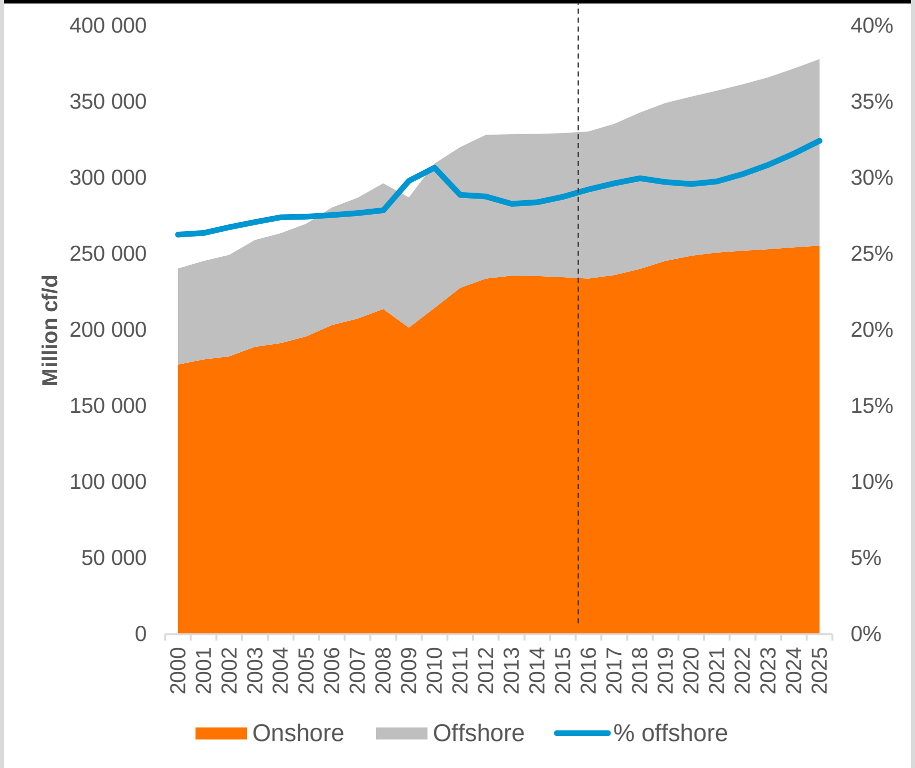
Global oil & gas supply: Share of offshore expected to grow

Global OIL production & share of offshore



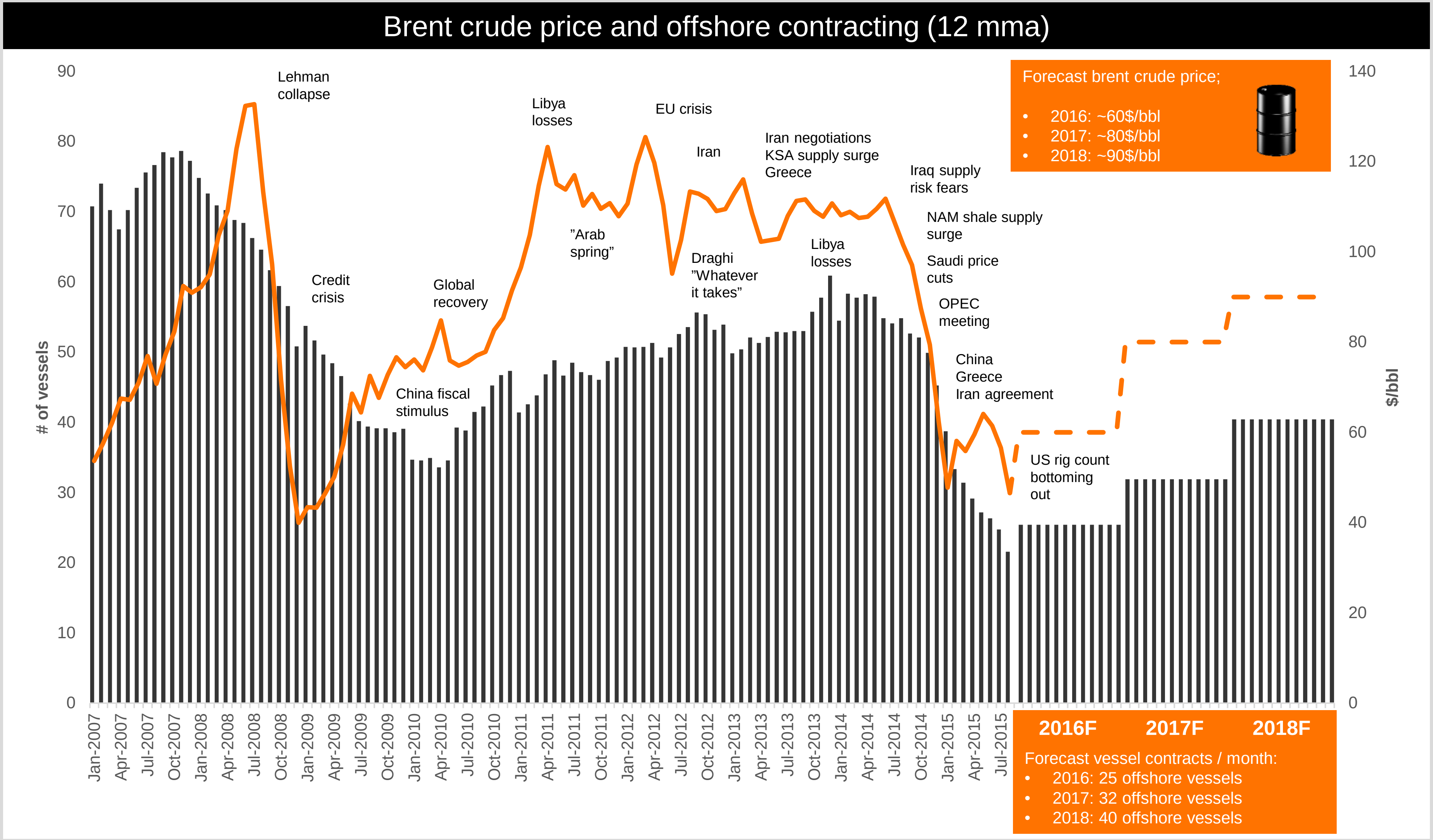
Global GAS production & share of offshore



- Offshore increases its share of total production in both oil and gas
- Growth in total gas production outpaces oil, also offshore gas production grows faster than oil
  - Total global offshore natural gas production is forecast to increase by more than 2% y-o-y 2015-2025

Source: Rystad Energy.

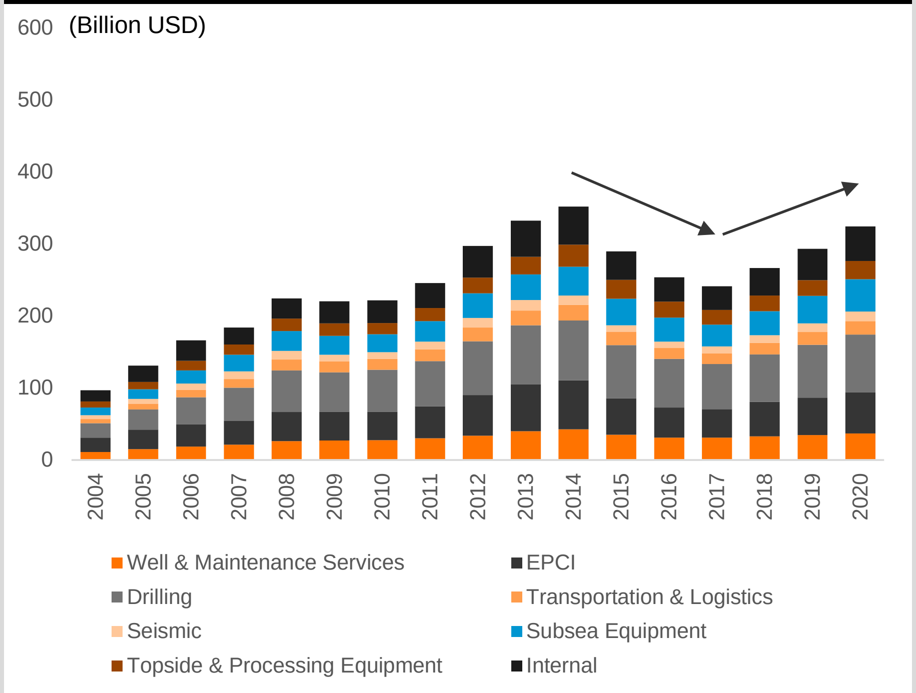
Offshore vessel contracting correlates with oil price



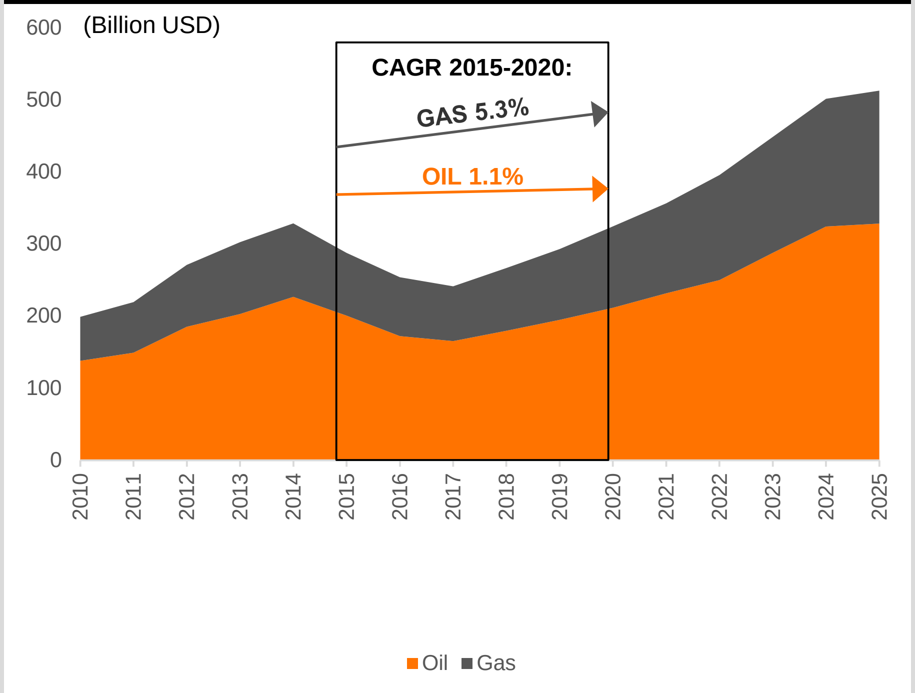
Source: EIA, Clarkson Platou, Douglas-Westwood.

The low oil price reduces the level of offshore investments near term

Exploration & Production Offshore CAPEX – by segment



Exploration & Production Offshore CAPEX – Oil and Gas split



- 2015 total offshore E&P CAPEX is expected to decline by 18% compared to 2014;
  - EPCI, Drilling, and Well & Maintenance Services segments expected to face the biggest decline
- E&P capex growth expected from 2018, with gas outpacing oil
- Offshore gas E&P capex forecast to double in the next 10 years

Source: Rystad Energy. E&P data modeled at 60-80 $/bbl 2015-2017 and above 80$/bbl from 2018 onwards.

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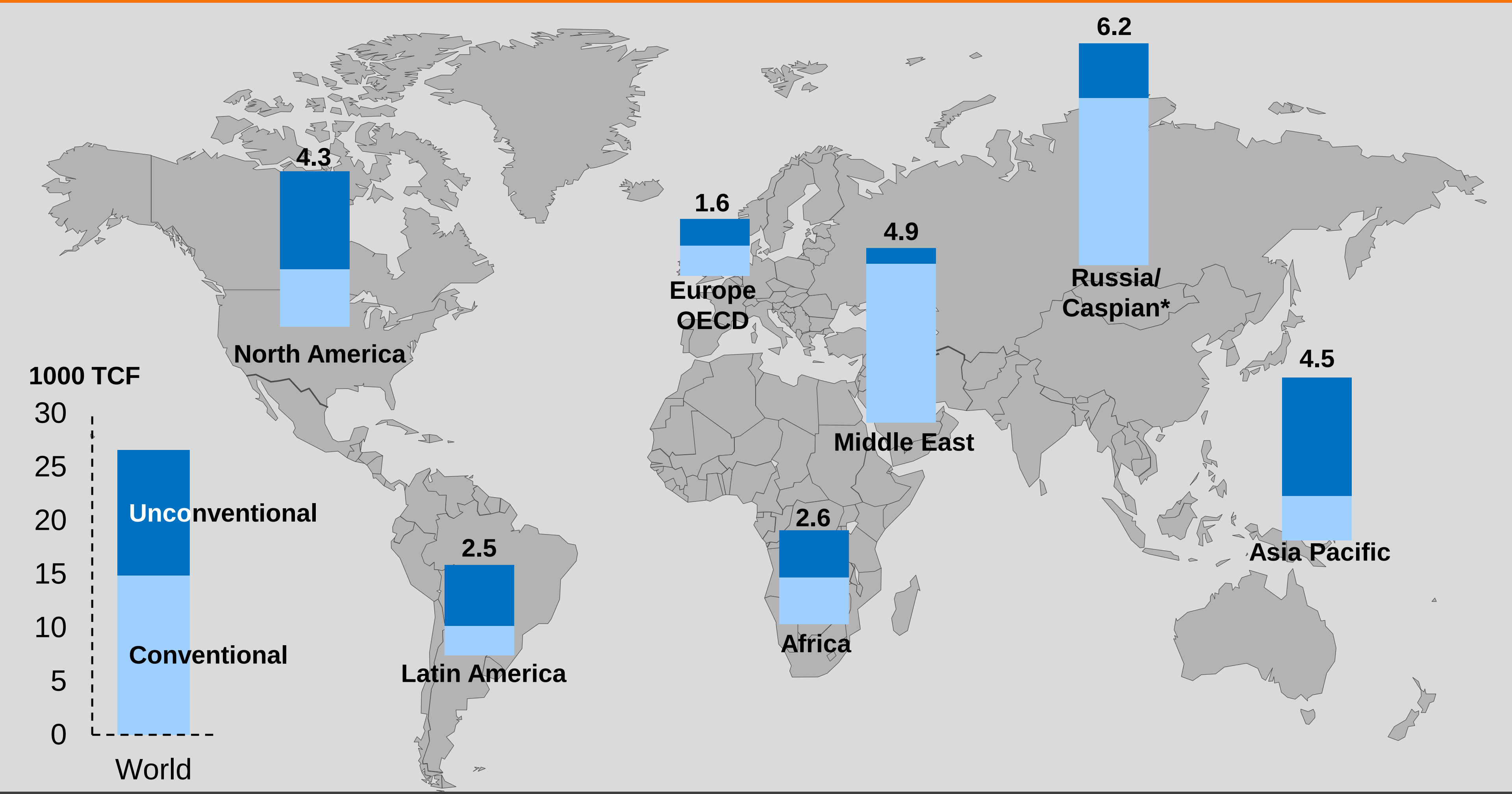
Global gas resources



- Technically recoverable reserves providing more than 200 years coverage at current demand
- However, it is estimated that only in North America unconventional gas production is reaching any significant volumes

Source: Exxon Mobile Energy Outlook

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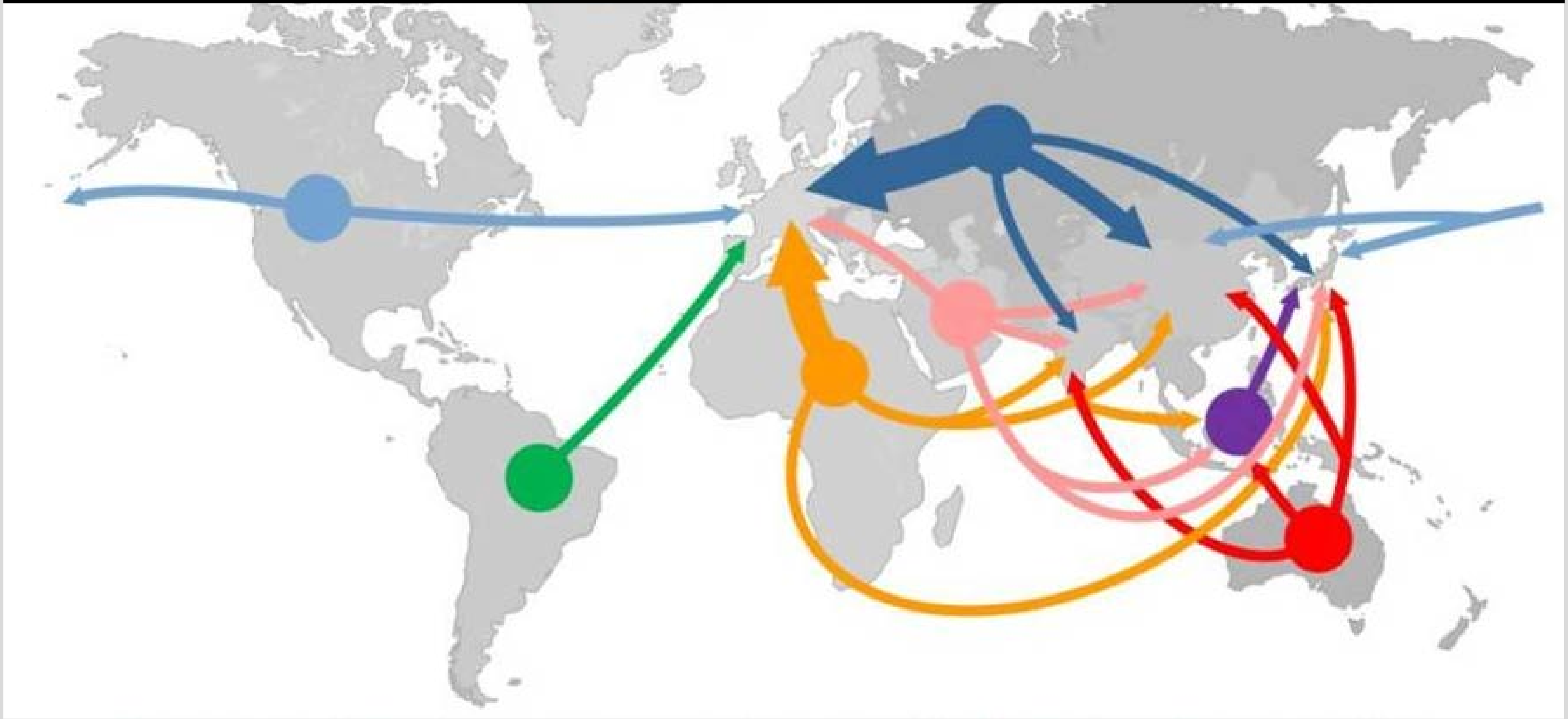
The natural gas market is global

World Energy Outlook by IEA*: MAJOR GLOBAL TRADE FLOWS 2035

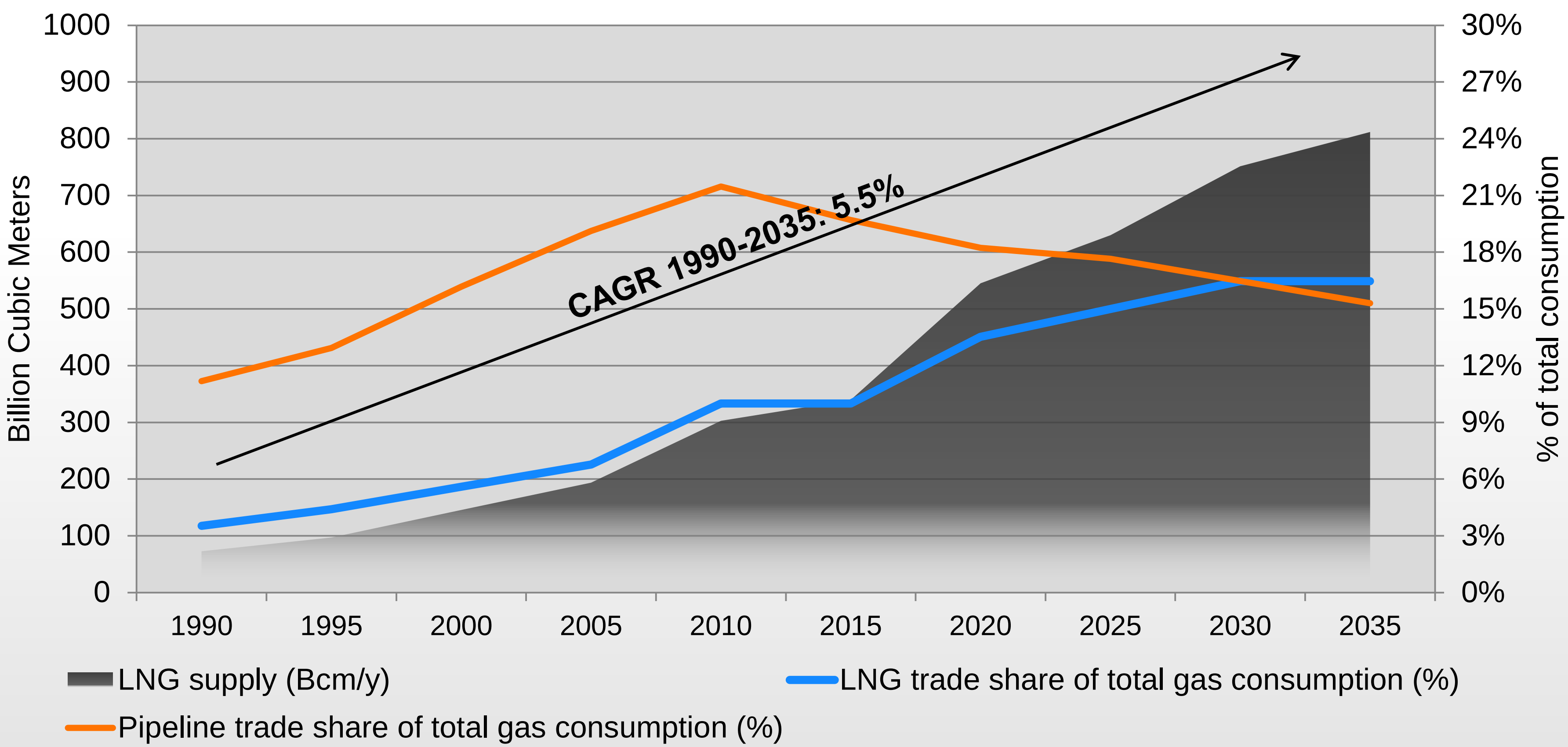


- Mismatch between resources’ and consumers’ locations requires investments in gas infrastructure

* IEA = International Energy Agency

Natural gas trade grows faster than consumption

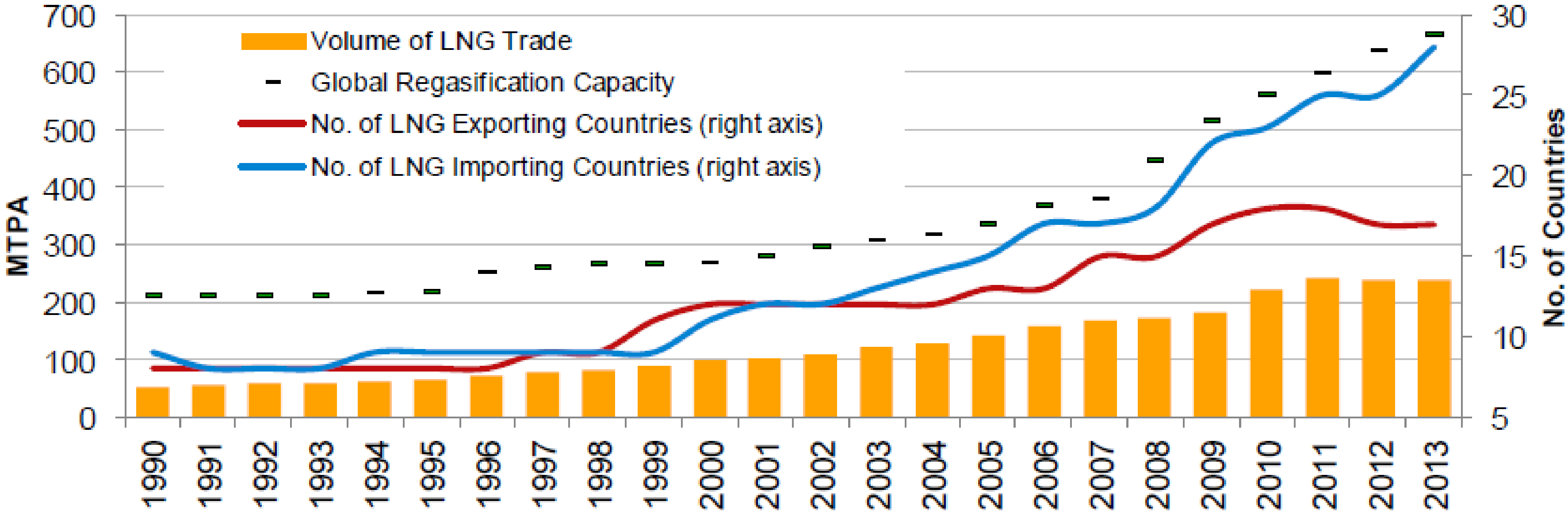
BP Energy Outlook 2035: LNG EXPORTS



- LNG exports increases its share of gas trade between regions, accounting for 16% of the global gas consumption in 2035 implying more than 50% of cross border traded gas volumes

Increasing number LNG importing countries

IGU* World LNG Report 2014: No. of LNG IMPORTING AND EXPORTING COUNTRIES



- Significant growth in number of importing countries increases demand for small and medium scale receiving terminals and gas carriers

* IGU = International Gas Union

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LEGEND
WÄRTSILÄ OFFERING
GAS LINE
SHIP ROUTE
GAS PRODUCING COUNTRY
GAS CONSUMING COUNTRY
OFFSHORE SERVICE VESSEL (OSV)
OIL & GAS PLATFORM
FLOATING STORAGE & (REGASIFICATION) UNIT (FSRU/FSU)
PLATFORM SUPPLY VESSEL (PSV)
POWER PLANT
LARGE LIQUEFACTION PLANT
LNG CARRIER
RELIQUEFACTION UNIT
GAS SOURCE
LNG PEAK SHAVING PLANT
BIG CITY
BUNKERING TERMINAL
LNG FUELLED PASSENGER SHIP
PORT
SATELLITE TERMINAL
LNG LOGISTICS
MINI LIQUEFACTION PLANT
TOWN
SMALL LIQUEFACTION PLANT
SMALL LNG CARRIER
STORAGE AND REGASIFICATION BARGE
POWER BARGE
SATELLITE TERMINAL
BUNKERING VESSEL
JETTY
LNG FUELLED CARGO SHIP
SMALL/MEDIUM TERMINAL
BUNKERING TERMINAL
LNG FILLING STATION
LNG LOGISTICS
INDUSTRY
TOWN
LARGE TERMINAL
SMALL LNG CARRIER
RELIQUEFACTION UNIT
REGASIFICATION UNIT
INDUSTRY
CITY
PORT
SATELLITE AND BUNKERING TERMINAL
BIOGAS LIQUEFACTION PLANT
LBG FILLING STATION

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Key gas applications with Wärtsilä involvement

Platform / Offshore support vessels, Anchor handling tugs

Floating / Jetty regasification units

LNG carriers

Small scale and biogas liquefaction plants

LPG, LEG, Ethane, Multigas and small LNG carriers

LNG import terminals and bunkering stations

Increasing number of gas fuelled vessels, e.g. cruise ships and ferries, PSVs and OSVs, merchant vessels

Power plants

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